

REMARKS

Reconsideration of the application is respectfully requested in view of the above amendments and the following remarks:

1) In response to the rejection of claim 2 under 35 U.S.C. § 112, second paragraph, claim 2 has been amended by changing "member" to --means--.

2) Claims 1-8 are rejected under 35 U.S.C. § 102(b) as being anticipated by Offer (U.S. Patent No. 3,776,384).

Offer relates to a filter unit 1 which has a housing that comprises a bowl-shaped base casting 3 and a cover member 5 that is attached to the base casting 3 by bolts 7 threaded into a flange 11 of the base casting 3. The filter unit 1 has an inlet 15 in base casting 3 and an outlet 17 in the cover member 5. The base casting 3 has a lateral flange 23 with openings 25 therein which are used in mounting the filter unit 1 in a suitable position on the engine or chassis of a vehicle with which the filter unit 1 is associated. A filter element 27 comprises a pleated paper 29 arranged in an annulus about the axis of the filter element 27, and the opposite ends of pleated paper 29 are bonded and sealed by a suitable adhesive to the upper and lower end plates 31 and 33 of the filter element 27. The bottom plate 33 of the filter element 27 is imperforate and may have a recess section 35 that serves to center a spring 37 that urges the filter element 27 to an upward position where it seats adjacent the outlet opening 17. The end cap 31 of the filter element 27 has a central opening in which is mounted a resilient outlet tube or rubber grommet 41, the grommet 41 preferably having an

angular recessed 42 that receives the edge of the end cap plate 31. The top end of the rubber grommet 41 sits against a surface 45 in a recess in the cover 5 and this surface 45 has a central outlet opening 47 that extends into the outlet opening 17. The grommet 41 is held against the seating surface 45 by means of the spring 37 pressing on the bottom of the filter element 27. Spring pressure plus the resilient nature of the grommet 41 provides an adequate seal, according to Offer. Offer notes that any leakage is of filtered coolant which is merely recirculated through the filter paper.

Applicant's inventive pressure vessel is designed that when it receives a severe side impact, such as that which might be incurred if the pressure vessel is dropped during installation, conveyance, or portable use, the impact does not result in cantilevered breakage of the pressure gradient member which often occurs in prior art pressure vessels in which the pressure gradient member is adhesively mounted to the top wall of the pressure vessel. With Applicant's inventive pressure vessel, the pressure gradient member 21 laterally shifts inside the pressure vessel 11 to press against the side wall of the pressure vessel when the pressure vessel receives a severe side impact, which results in providing substantially uniform support of the load on the pressure gradient member 21 created by the side impact to the pressure vessel.

In contrast to Applicant's inventive pressure vessel, Offer's grommet 41 does not provide means "for permitting the pressure gradient member to laterally shift inside the pressure vessel to press against the side wall of the pressure vessel", as recited in Applicant's amended claim 1. Offer discloses a filter unit 1 that is designed to permit easy replacement of his filter element 27, and his mounting means for mounting the filter element 27 in place is a spring 37 which pushes against the bottom

portion of the filter element 27 to push the filter element 27 and the grommet 41 mounted thereto upwardly against the outlet port. Offer's filter element is not designed for lateral shifting inside the filter unit 1 such that the filter element 27 presses against the side wall of the filter unit 1. Offer has most of his grommet 41 contained within a recess, the walls of which would hinder lateral shifting. Further, lateral shifting of the Offer filter element 27 may result in dismounting the filter element 27, and most likely would break any seal between the grommet 41 and the surface 45 that resulted by the spring pushing the grommet 41 against surface 45.

Also, Offer's filter unit 1 does not have means at the first end portion of his grommet 41 for fastening the end portion of his grommet 41 to the outlet port. As recited in Applicant's claim 1, means are provided at the first end portion of Applicant's flexible resilient tube means for fastening a first end portion of the flexible tube means to the outlet port of the outlet means and for sealing between the first end portion of the flexible resilient tube means and the outlet port of the outlet means. Offer merely pushes the end portion of his grommet 41 against the outlet port with his spring 37. There is no means provided by Offer at the end portion of his grommet 41 that contact the outlet port for fastening the grommet 41 to the outlet port. As recognized by Offer, leakage of fluid between his grommet 41 and surface 45 is possible, but not of any concern since he notes that "any leakage is of filter coolant which is merely recirculated through the filter paper" (Col. 2, line 10-12). Applicant's claimed invention, on the other hand, prevents any contaminated or untreated fluid from passing through the outlet means of the pressure vessel.

Applicant's claims 2-4 depend from Applicant's claim 1 and are believed to

be patentable for the same reasons as claim 1 and further because they add additional claim elements which further distinguish Applicant's invention over the cited reference.

Applicant's amended claim 5 recites in part that the flexible resilient tube means provides "a seal between a first end portion of the flexible resilient tube means and the outlet port of the outlet means and a seal between a second end portion of the flexible resilient tube means and the outlet port of the pressure gradient member", and permits "the pressure gradient member to laterally shift inside the pressure vessel to press against the side wall of the pressure vessel to provide substantially uniform support of a load on the pressure gradient member creating by side impact to the pressure vessel without breaking the seal between the first end portion of the flexible resilient tube means and the outlet port of the outlet means and the seal between the second end portion of the flexible resilient tube means and the outlet port of the pressure gradient member." Offer does not teach or suggest this.

Applicant's claims 6-8 depend from Applicant's claim 5 and are believed to be patentable for the same reasons as claim 5 and further because they add additional claim elements which further distinguish Applicant's invention over the cited reference.

Based on the above, withdrawal of the § 102(b) rejection is respectfully solicited.

3) Claims 1-8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Williams (U.S. Patent 5,230,812) in view of Offer.

Williams ('812) discloses a pressure vessel 11 that includes a cover and a

bowl, and a flexible shear rod for securing the cover to the bowl. Williams ('812) provides a pressure vessel 11 that includes an easy and effective way to close the two halves of a pressure vessel in a strong and secure manner. When it is desired to replace the cartridge filter secured in the pressure vessel 11 of Williams ('812), pressure vessel 11 may be opened by removing the flexible shear rod 39 from the track 37 by pulling on the handle 51. With flexible shear rod 39 removed from the track 37, cover 13 may be removed from bowl 15 to permit the used cartridge filter to be removed from the pressure vessel 11 and replaced with a fresh cartridge filter. The cover 13 and the bowl 15 may be rejoined and then secured together by replacing the flexible shear rod 39 into the track 37.

Williams ('812), as recognized by the Examiner does not provide any flexible resilient tube, and there is no suggestion in the cited references to make the combination of references set out in the Official Action. For example, neither reference teaches or suggests Applicant's flexible resilient tube means for permitting the pressure gradient member to laterally shift inside the pressure vessel to press against the side wall of the pressure vessel, or means at the first end portion of the flexible resilient tube means for fastening the first end portion of the flexible resilient tube means to the outlet port of the outlet means and for sealing between the first end portion of the flexible resilient tube means and the outlet port of the outlet means. Also, Offer is unconcerned with possible leakage between the end of his grommet 41 and surface 45, and such leakage would be unacceptable in the pressure vessel of Williams ('812) which holds a cartridge, loose media, and the like for conditioning and/or purifying fluid, such as water for drinking.

Applicant's claims 2-4 depend from Applicant's claim 1 and are believed to be patentable for the same reasons as claim 1 and further because they add additional claim elements which further distinguish Applicant's invention over the cited reference.

The combination of Williams ('812) and Offer does not teach or suggest Applicant's pressure vessel, as recited in Applicant's amended claim 5, which includes a flexible resilient tube means that provides "a seal between a first end portion of the flexible resilient tube means and the outlet port of the outlet means and a seal between a second end portion of the flexible resilient tube means and the outlet port of the pressure gradient member", and permits "the pressure gradient member to laterally shift inside the pressure vessel to press against the side wall of the pressure vessel to provide substantially uniform support of a load on the pressure gradient member creating by side impact to the pressure vessel without breaking the seal between the first end portion of the flexible resilient tube means and the outlet port of the outlet means and the seal between the second end portion of the flexible resilient tube means and the outlet port of the pressure gradient member."

Applicant's claims 6-8 depend from Applicant's claim 5 and are believed to be patentable for the same reasons as claim 5 and further because they add additional claim elements which further distinguish Applicant's invention over the cited reference.

Based on the above, withdrawal of the § 103(a) rejection is respectfully solicited.

- 4) New claims 9-14 have been added to round out the coverage of the

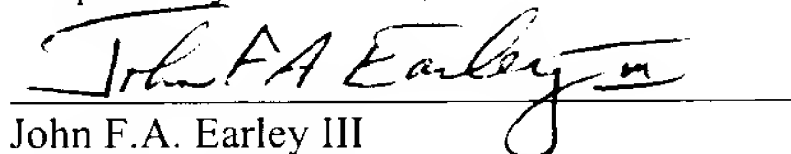
claims.

5) It is believed that the claims define a new, useful, and unobvious invention. Accordingly, an early notice of allowance is respectfully solicited.

6) If necessary, an appropriate extension of time to respond is respectfully requested.

7) The Commissioner is authorized to charge any additional fees which may be required to Patent Office Deposit Account No. 05-0208.

Respectfully submitted,



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In re Application of
RICHARD T. WILLIAMS
Serial No. 09/882,383
Filed: 06/15/2001
For: PRESSURE VESSEL

Examiner: Marianne S. Ocampo
Art Unit: 1723

Assistant Commissioner for
Patents
Washington, DC 20231

SIR:

APPENDIX OF CLAIM AMENDMENTS

1. (Amended) A pressure vessel comprising
a top wall, a bottom wall, a side wall extending between the top wall and the
bottom wall, and a chamber formed by said walls,
inlet means extending through one of the walls for introducing fluid to the
pressure vessel,
outlet means extending through one of the walls for removing fluid from the
pressure vessel, the outlet means including an outlet port,
a pressure gradient member located within the chamber of the pressure vessel
through which fluid passing through the pressure vessel flows as the fluid passes
through the pressure vessel , the pressure gradient member including an outlet port,
[and]
flexible resilient tube means extending between the outlet port of the pressure

gradient member and the outlet port of the outlet means for mounting the pressure gradient member within the chamber formed by the walls of the pressure vessel and for connecting the outlet port of the pressure gradient member to the outlet port of the outlet means and for permitting the pressure gradient member to laterally shift inside the pressure vessel to press against the side wall of the pressure vessel, the flexible resilient tube mean having a first end portion and a second end portion, and

means at the first end portion of the flexible resilient tube means for fastening the first end portion of the flexible resilient tube means to the outlet port of the outlet means and for sealing between the first end portion of the flexible resilient tube means and the outlet port of the outlet means.

2. (Amended) The pressure vessel of claim 1, the flexible resilient tube [member] means comprising

a flexible resilient tube,

the flexible resilient tube having a first end portion and a second end portion, the first end portion being mounted over the outlet port of the pressure gradient member and the second end portion being mounted over the outlet port of the outlet means.

5. (Amended) A pressure vessel comprising

a top wall, a bottom wall, a side wall extending between the top wall and the bottom wall, and a chamber formed by said walls,

inlet means extending through one of the walls for introducing fluid to the pressure vessel,

outlet means extending through one of the walls for removing fluid from the

pressure vessel, the outlet means including an outlet port,

a pressure gradient member located within the chamber of the pressure vessel through which fluid passing through the pressure vessel flows as the fluid passes through the pressure vessel, the pressure gradient member including an outlet port, and

flexible resilient tube means extending between the outlet port of the pressure gradient member and the outlet port of the outlet means for mounting the pressure gradient member within the chamber formed by the walls of the pressure vessel and for providing a seal between a first end portion of the flexible resilient tube means and the outlet port of the outlet means and a seal between a second end portion of the flexible resilient tube means and the outlet port of the pressure gradient member and for connecting the outlet port of the pressure gradient member to the outlet port of the outlet means and for permitting the pressure gradient member to laterally shift inside the pressure vessel to press against the side wall of the pressure vessel to provide [providing] substantially uniform support of a load on the pressure gradient member created by side impact to the pressure vessel without breaking the seal between the first end portion of the flexible resilient tube means and the outlet port of the outlet means and the seal between the second end portion of the flexible resilient tube means and the outlet port of the pressure gradient member.

--9. (New) A pressure vessel comprising

a top wall, a bottom wall, a side wall extending between the top wall and the bottom wall, and a chamber formed by said walls,

inlet means extending through one of the walls for introducing fluid to the

pressure vessel,

outlet means extending through one of the walls for removing fluid from the pressure vessel, the outlet means including an outlet port,

a pressure gradient member located within the chamber of the pressure vessel through which fluid passing through the pressure vessel flows as the fluid passes through the pressure vessel, the pressure gradient member including an outlet port, and

a flexible resilient tube extending between the outlet port of the pressure gradient member and the outlet port of the outlet means for mounting the pressure gradient member within the chamber formed by the walls of the pressure vessel and for connecting the outlet port of the pressure gradient member to the outlet port of the outlet means,

the flexible resilient tube having a first end portion and a second end portion, the first end portion being press fit over the outlet port of the outlet means and the second end portion being press fit over the outlet port of the pressure gradient member, and

the flexible tube permitting the pressure gradient member to laterally shift inside the pressure vessel to press against the side wall of the pressure vessel.--

--10. (New) The pressure vessel of claim 9, the pressure gradient member comprising

a cartridge.--

--11. (New) A pressure vessel comprising

a top wall, a bottom wall, a side wall extending between the top wall and the

bottom wall, and a chamber formed by said walls,

inlet means extending through one of the walls for introducing fluid to the pressure vessel,

outlet means extending through one of the walls for removing fluid from the pressure vessel, the outlet means including an outlet port,

a pressure gradient member located within the chamber of the pressure vessel through which fluid passing through the pressure vessel flows as the fluid passes through the pressure vessel, the pressure gradient member including an outlet port,

a flexible resilient tube extending between the outlet port of the pressure gradient member and the outlet port of the outlet means for mounting the pressure gradient member within the chamber formed by the walls of the pressure vessel and for connecting the outlet port of the pressure gradient member to the outlet port of the outlet means, and

means for providing substantially uniform support of a load on the pressure gradient member created by side impact to the pressure vessel by permitting the pressure gradient member to laterally shift inside the pressure vessel to press against the side wall of the pressure vessel.--

--12. (New) The pressure vessel of claim 11, the pressure gradient member comprising

a cartridge.--

--13. (New) A pressure vessel comprising

a top wall, a bottom wall, a side wall extending between the top wall and the bottom wall, and a chamber formed by said walls,

inlet means extending through one of the walls for introducing fluid to the pressure vessel,

outlet means extending through one of the walls for removing fluid from the pressure vessel, the outlet means including an outlet port,

a pressure gradient member located within the chamber of the pressure vessel through which fluid passing through the pressure vessel flows as the fluid passes through the pressure vessel, the pressure gradient member including an outlet port,

a flexible resilient tube extending between the outlet port of the pressure gradient member and the outlet port of the outlet means for mounting the pressure gradient member within the chamber formed by the walls of the pressure vessel and for connecting the outlet port of the pressure gradient member to the outlet port of the outlet means, the flexible resilient tube having a first end portion and a second end portion,

the flexible tube permitting the pressure gradient member to laterally shift inside the pressure vessel to press against the side wall of the pressure vessel,

means at the first end portion of the flexible resilient tube for fastening the first end portion of the flexible resilient tube to the outlet port of the outlet means, and

means at the second end portion of the flexible resilient tube for fastening the second end portion of the flexible resilient tube to the outlet port of the pressure gradient member.--

--14. (New) The pressure vessel of claim 13, the pressure gradient member comprising
a cartridge.--